DIRECT TESTIMONY OF
JOHN J. SPANOS
ON BEHALF OF
SOUTH CAROLINA ELECTRIC AND GAS COMPANY
DOCKET NO. 2005-113-G

Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. My name is John J. Spanos. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania, 17011.

Q. ARE YOU ASSOCIATED WITH ANY FIRM?

A. Yes. I am associated with the firm of Gannett Fleming, Inc.

Q. HOW LONG HAVE YOU BEEN ASSOCIATED WITH GANNETT FLEMING, INC.?

A. I have been associated with the firm since college graduation in June 1986.

Q. WHAT IS YOUR POSITION WITH THE FIRM?

A. I am a Vice President of the Valuation and Rate Division.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have Bachelor of Science degrees in Industrial Management and Mathematics from Carnegie-Mellon University and a Master of Business Administration from York College of Pennsylvania.

Q. DO YOU BELONG TO ANY PROFESSIONAL SOCIETIES?

A. Yes. I am a member of the Society of Depreciation Professionals and the American Gas Association/Edison Electric Institute Industry Accounting Committee.

Q. DO YOU HOLD ANY SPECIAL CERTIFICATION AS A DEPRECIATION EXPERT?

A. Yes. The Society of Depreciation Professionals has established national standards for depreciation professionals. The Society administers an examination to become certified in this field. I passed the certification exam in September 1997 and was recertified in August 2003.

Q. PLEASE OUTLINE YOUR EXPERIENCE IN THE FIELD OF DEPRECIATION.

A. In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants, Inc. as a Depreciation Analyst. During the period June 1986 through December 1995, I assisted in the preparation of numerous depreciation and original cost studies for utility companies in various industries. I assisted in the conduct of depreciation studies for the following telephone companies: United Telephone Company of Pennsylvania, United Telephone Company of New Jersey and Anchorage Telephone Utility. In addition, I assisted in the conduct of depreciation studies for the following companies in the railroad industry: Union Pacific Railroad, Burlington Northern Railroad and Wisconsin Central Transportation Corporation.

I assisted in the preparation of depreciation studies for the following organizations in the electric industry: Chugach Electric Association, The Cincinnati Gas & Electric Company (CG&E), The Union Light, Heat and Power Company (ULH&P), Northwest Territories Power Corporation and the City of Calgary - Electric System.

I assisted in the preparation of depreciation studies for the following pipeline companies: TransCanada Pipelines Limited, Trans Mountain Pipe Line Company

Ltd., Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline Company.

I assisted in the preparation of depreciation studies for the following gas companies: Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples Natural Gas Company, T. W. Phillips Gas & Oil Company, CG&E, ULH&P, Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

I assisted in the preparation of depreciation studies for the following water companies: Indiana-American Water Company, Consumers Pennsylvania Water Company and The York Water Company; and depreciation and original cost studies for Philadelphia Suburban Water Company and Pennsylvania-American Water Company.

In each of the above studies, I assembled and analyzed historical and simulated data, performed field reviews, developed preliminary estimates of service life and net salvage, calculated annual depreciation, and prepared reports for submission to state public utility commissions or Federal regulatory agencies.

In January 1996, I was assigned to the position of Supervisor of Depreciation Studies. In July 1999, I was promoted to the position of Manager, Depreciation and Valuation Studies. In December 2000, I attained my current position of Vice President.

I am responsible for conducting depreciation, valuation and original cost studies, including the preparation of final exhibits and responses to data requests for submission to the appropriate regulatory bodies. Since January 1996, I have

conducted depreciation studies similar to those previously listed including assignments for Hampton Water Works Company, Omaha Public Power District, Enbridge Pipe Line Company, Inc., Columbia Gas of Virginia, Inc., Virginia Natural Gas Company, National Fuel Gas Distribution Corporation - New York and Pennsylvania Divisions, The City of Bethlehem - Bureau of Water, The City of Coatesville Authority, The City of Lancaster - Bureau of Water, Peoples Energy Corporation, The York Water Company, Public Service Company of Colorado, Reliant Energy-HLP, Massachusetts-American Water Company, St. Louis County Water Company, Missouri-American Water Company, Chugach Electric Association, Alliant Energy, Oklahoma Gas and Electric Company, Nevada Power Company, Dominion Virginia Power, NUI-Virginia Gas Companies, PSI Energy, NUI - Elizabethtown Gas Company, Cinergy Corporation – CG&E, Cinergy Corporation – ULH&P, Columbia Gas of Kentucky, Idaho Power Company, El Paso Electric Company, Centennial Pipeline Company, NSTAR – Boston Edison Company, South Jersey Gas Company, EPCOR Distribution, Inc., Westar Energy, City of New Kensington Municipal Authority, Bonneville Power Administration, MidAmerican Energy Company, Municipal Light and Power Utility, and B. C. Gas Utility, Ltd.

My additional duties include determining final life and salvage estimates, conducting field reviews, presenting recommended depreciation rates to management for its consideration and supporting such rates before regulatory bodies.

Q. HAVE YOU SUBMITTED TESTIMONY TO ANY STATE UTILITY COMMISSIONS ON THE SUBJECT OF UTILITY PLANT DEPRECIATION?

A. Yes. In addition to testifying as an expert in depreciation before the South Carolina Public Service Commission, I have submitted expert testimony to the Pennsylvania Public Utility Commission, the Commonwealth of Kentucky Public Service Commission, the Public Utilities Commission of Ohio, the Public Utility Commission of Nevada, Indiana Utility Regulatory Commission, the Public Utilities Board of New Jersey, Missouri Public Service Commission, Louisiana Public Service Commission, Corporation Commission of the State of Oklahoma, Railroad Commission of Texas – Gas Services Division, the New York Public Service Commission, Illinois Commerce Commission and the Massachusetts Department of Telecommunications and Energy.

Q. HAVE YOU RECEIVED ANY ADDITIONAL EDUCATION RELATING TO UTILITY PLANT DEPRECIATION?

A. Yes. I have completed the following courses conducted by Depreciation Programs, Inc.: "Techniques of Life Analysis," "Techniques of Salvage and Depreciation Analysis," "Forecasting Life and Salvage," "Modeling and Life Analysis Using Simulation" and "Managing a Depreciation Study."

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. My testimony will support and explain the depreciation study conducted under my direction and supervision for the gas utility plant of South Carolina Electric and Gas Company ("SCE&G" or "Company"). The study represents all depreciable gas plant assets.

Q. PLEASE DEFINE THE CONCEPT OF DEPRECIATION.

A. Depreciation refers to the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes that can be reasonably anticipated or contemplated, against which the Company is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, obsolescence, changes in the art, changes in demand and the requirements of public authorities.

Q. PLEASE IDENTIFY EXHIBIT NO. ___ (JJS-1).

A. Exhibit No. ___ (JJS-1) is a report entitled, "Depreciation Study - Calculated Annual Depreciation Accruals Related to Gas Plant as of December 31, 2003." This report sets forth the results of my depreciation study for SCE&G.

Q. IS EXHIBIT NO. ___ (JJS-1) A TRUE AND ACCURATE COPY OF YOUR DEPRECIATION STUDY?

A. Yes.

Q. DOES EXHIBIT NO. ___ (JJS-1) ACCURATELY PORTRAY THE RESULTS OF YOUR DEPRECIATION STUDY AS OF DECEMBER 31, 2003?

A. Yes.

Q. WHAT WAS THE PURPOSE OF YOUR DEPRECIATION STUDY?

A. The purpose of the depreciation study was to estimate the annual depreciation accruals related to gas plant in service for financial and ratemaking purposes and determine appropriate average service lives and net salvage percents for each plant account.

Q. PLEASE DESCRIBE THE CONTENTS OF YOUR REPORT.

A. My report is presented in three parts. Part I, Introduction, presents the scope and basis for the depreciation study. Part II, Methods Used in the Estimation of Depreciation, includes descriptions of the basis of the study, the estimation of survivor curves and net salvage and the calculation of annual and accrued depreciation. Part III, Results of Study, presents a description of the results, and a summary of the depreciation calculations.

The table on page III-3 presents the estimated survivor curve, the net salvage percent, the original cost as of December 31, 2003, the book reserve and the calculated annual depreciation accrual and rate for each account or subaccount for the company.

Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR DEPRECIATION STUDY.

A. I used the straight line remaining life method of depreciation, with the average service life procedure. The annual depreciation is based on a method of depreciation accounting that seeks to distribute the unrecovered cost of fixed capital assets over

the estimated remaining useful life of each unit, or group of assets, in a systematic and rational manner.

For General Plant Accounts 491.1, 491.2, 491.3, 493.0, 494.1, 494.2, 494.3, 494.4, 495.1, 495.2, 495.3, 497.0, and 498.0, I used the straight line remaining life method of amortization. The annual amortization is based on amortization accounting that distributes the unrecovered cost of fixed capital assets over the remaining amortization period selected for each account and vintage (year of installation).

Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL DEPRECIATION ACCRUAL RATES?

A. I did this in two phases. In the first phase, I estimated the service life and net salvage characteristics for each depreciable group, that is, each plant account or subaccount identified as having similar characteristics. In the second phase, I calculated the composite remaining lives and annual depreciation accrual rates based on the service life and net salvage estimates determined in the first phase.

Q. PLEASE DESCRIBE THE FIRST PHASE OF THE DEPRECIATION STUDY, IN WHICH YOU ESTIMATED THE SERVICE LIFE AND NET SALVAGE CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.

A. The service life and net salvage study consisted of compiling historical data from records related to SCE&G's plant; analyzing these data to obtain historical trends of survivor and net salvage characteristics; obtaining supplementary information from SCE&G's management and operating personnel concerning practices and plans as they relate to plant operations; and interpreting the above data and the estimates used

by other gas utilities to form judgments of average service life and net salvage characteristics.

Q. WHAT HISTORICAL DATA DID YOU ANALYZE FOR THE PURPOSE OF ESTIMATING SERVICE LIFE CHARACTERISTICS?

A. I analyzed the Company's accounting entries that record plant transactions during the period 1964 through 2003. The transactions included additions, retirements, transfers and the related balances. The Company records also included surviving dollar value by year installed for each plant account as of December 31, 2003.

Q. WHAT METHOD DID YOU USE TO ANALYZE THIS SERVICE LIFE DATA?

A. I used the retirement rate method. This is the most appropriate method when aged retirement data are available, because this method determines the average rates of retirement actually experienced by the Company during the period of time covered by the study.

Q. PLEASE DESCRIBE HOW YOU USED THE RETIREMENT RATE METHOD TO ANALYZE SCE&G'S SERVICE LIFE DATA.

A. I applied the retirement rate method to each different group of property in the study. For each property group, I used the retirement rate method to form a life table which, when plotted, shows an original survivor curve for that property group. Each original survivor curve represents the average survivor pattern experienced by the several vintage groups during the experience band studied. The survivor patterns do not necessarily describe the life characteristics of the property group; therefore,

interpretation of the original survivor curves is required in order to use them as valid considerations in estimating service life. The Iowa-type survivor curves were used to perform these interpretations.

Q. WHAT IS AN "IOWA-TYPE SURVIVOR CURVE" AND HOW DID YOU USE SUCH CURVES TO ESTIMATE THE SERVICE LIFE CHARACTERISTICS FOR EACH PROPERTY GROUP?

A. Iowa type curves are a widely used group of generalized survivor curves that contain the range of survivor characteristics usually experienced by utilities and other industrial companies. The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observing and classifying the ages at which various types of property used by utilities and other industrial companies had been retired.

Iowa type curves are used to smooth and extrapolate original survivor curves determined by the retirement rate method. The Iowa curves and truncated Iowa curves were used in this study to describe the forecasted rates of retirement based on the observed rates of retirement and the outlook for future retirements.

The estimated survivor curve designations for each depreciable property group indicate the average service life, the family within the Iowa system to which the property group belongs, and the relative height of the mode. For example, the Iowa 60-R4 indicates an average service life of sixty years; a right-moded, or R, type curve (the mode occurs after average life for right-moded curves); and a high height, 4, for the mode (possible modes for R type curves range from 1 to 5).

Q. ARE THE FACTORS CONSIDERED IN YOUR ESTIMATES OF SERVICE LIFE AND NET SALVAGE PERCENTS PRESENTED IN EXHIBIT NO. ___ (JJS-1)?

A. Yes. A discussion of the factors considered in the estimation of service lives and net salvage percents are presented on pages II-3 through II-27 of Exhibit No. ___ (JJS-1).

Q. DID YOU PHYSICALLY OBSERVE SCE&G'S PLANT AND EQUIPMENT AS PART OF YOUR DEPRECIATION STUDY?

A. Yes. I made a field review of SCE&G's property to observe representative portions of plant. Field reviews are conducted to become familiar with Company operations and obtain an understanding of the function of the plant and information with respect to the reasons for past retirements and the expected future causes of retirements. This knowledge was incorporated in the interpretation and extrapolation of the statistical analyses.

Q. WOULD YOU PLEASE EXPLAIN THE CONCEPT OF "NET SALVAGE"?

A. Net salvage is a component of the service value of capital assets that is recovered through depreciation rates. The service value of an asset is its original cost less its net salvage. Net salvage is the salvage value received for the asset upon retirement less the cost to retire the asset. When the cost to retire exceeds the salvage value, the result is negative net salvage.

Inasmuch as depreciation expense is the loss in service value of an asset during a defined period, e.g. one year, it must include a ratable portion of both the original cost and the net salvage. That is, the net salvage related to an asset should be

incorporated in the cost of service during the same period as its original cost so that customers receiving service from the asset pay rates that include a portion of both elements of the asset's service value, the original cost and the net salvage value.

For example, the full recovery of the service value of a $500 regulator will include not only the $500 of original cost, but also, on average, $250 to remove the regulator at the end of its life and $50 in salvage value. In this example, the net salvage component is negative $200 ($50 - $250), and the net salvage percent is negative 40% (($50 - $250)/$500).

Q. PLEASE DESCRIBE HOW YOU ESTIMATED NET SALVAGE PERCENTAGES.

A. I estimated the net salvage percentages incorporating the historical data for the period 1986 through 2003 and considered estimates for other gas companies.

Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT YOU USED IN THE DEPRECIATION STUDY IN WHICH YOU CALCULATED COMPOSITE REMAINING LIVES AND ANNUAL DEPRECIATION ACCRUAL RATES.

A. After I estimated the service life and net salvage characteristics for each depreciable property group, I calculated the annual depreciation accrual rates for each group based on the straight line remaining life method, using remaining lives weighted consistent with the average service life procedure. The calculation of annual depreciation accrual rates were developed as of December 31, 2003.

Q. PLEASE DESCRIBE THE STRAIGHT LINE REMAINING LIFE METHOD OF DEPRECIATION.

A. The straight line remaining life method of depreciation allocates the original cost of the property, less accumulated depreciation, less future net salvage, in equal amounts to each year of remaining service life.

Q. PLEASE DESCRIBE AMORTIZATION ACCOUNTING.

A. Amortization accounting is used for accounts with a large number of units, but small asset values. In amortization accounting, units of property are capitalized in the same manner as they are in depreciation accounting. However, depreciation accounting is difficult for these assets because periodic inventories are required to properly reflect plant in service. Consequently, retirements are recorded when a vintage is fully amortized rather than as the units are removed from service. That is, there is no dispersion of retirement. All units are retired when the age of the vintage reaches the amortization period. Each plant account or group of assets is assigned a fixed period which represents an anticipated life during which the asset will render service. For example, in amortization accounting, assets that have a 20-year amortization period will be fully recovered after 20 years of service and taken off the Company books, but not necessarily removed from service. In contrast, assets that are taken out of service before 20 years remain on the books until the amortization period for that vintage has expired.

Q. AMORTIZATION ACCOUNTING IS BEING IMPLEMENTED FOR WHICH PLANT ACCOUNTS?

A. Amortization accounting is only appropriate for certain General Plant accounts. These accounts are 491.1, 491.2, 491.3, 493.0, 494.1, 494.2, 494.3, 494.4, 495.1, 495.2, 495.3, 497.0, and 498.0, which represent less than two percent of depreciable plant.

Q. PLEASE USE AN EXAMPLE TO ILLUSTRATE THE DEVELOPMENT OF THE ANNUAL DEPRECIATION ACCRUAL RATE FOR A PARTICULAR GROUP OF PROPERTY IN YOUR DEPRECIATION STUDY.

A. I will use Account 476, Mains, as an example because it is the largest depreciable group for mass accounts and represents an easily understood asset.

The retirement rate method was used to analyze the survivor characteristics of this property group. Aged plant accounting data were compiled from 1991 through 2003 and analyzed in periods that best represent the overall service life of this property. The life table for the 1991-2003 experience band is presented in Exhibit No. ___ (JJS-2). The 1991-2003 life table displays the retirement and surviving ratios of the aged plant data exposed to retirement by age interval. For example, page 2 of Exhibit No. ___ (JJS-2), shows $1,957 retired during age interval 0.5-1.5 with $90,352,930 exposed to retirement at the beginning of the interval. Consequently, the retirement ratio is 0.00002 ($1,957/$90,352,930) and the surviving ratio is 0.99998 (1-.00002) (rounded to 1.0 as shown on Ex. No. ___ (JJS-2)). The life table, or original survivor curve, is plotted along with the estimated smooth survivor curve, the 60-R4 on page 1 of Exhibit No. ___ (JJS-2).

My calculation of the annual depreciation related to original cost of gas utility plant at December 31, 2003, is presented on pages 1 and 2 of Exhibit No. ___ (JJS-3). The calculation is based on the 60-R4 survivor curve, 25% negative net salvage, the attained age, and the allocated book reserve. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual. These totals are brought forward to the table on page III-3.

Q. WAS EXHIBIT NO. ___ (JJS-1) PREPARED UNDER YOUR DIRECTION AND CONTROL?

A. Yes.

Q. IN YOUR OPINION, ARE THE DEPRECIATION AND AMORTIZATION RATES SET FORTH IN JJS-1 THE APPROPRIATE RATES FOR THE COMMISSION TO ADOPT IN THIS PROCEEDING FOR SCE&G?

A. Yes. These rates appropriately reflect the rates at which the value of SCE&G's assets is being consumed over their useful lives. These rates are an appropriate basis for setting gas rates in this matter and for the Company to use for financial purposes and in booking depreciation and amortization expense going forward.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Exhibit No. ___ (JJS-1)

SOUTH CAROLINA ELECTRIC & GAS COMPANY

COLUMBIA, SOUTH CAROLINA

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO GAS PLANT

AS OF DECEMBER 31, 2003

Gannett Fleming
Valuation and Rate Division

Harrisburg, Pennsylvania **Calgary, Alberta** **Valley Forge, Pennsylvania**

SOUTH CAROLINA ELECTRIC & GAS COMPANY

Columbia, South Carolina

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS

RELATED TO GAS PLANT

AS OF DECEMBER 31, 2003

GANNETT FLEMING, INC. - VALUATION AND RATE DIVISION

Harrisburg, Pennsylvania

Gannett Fleming

GANNETT FLEMING, INC.
P.O. Box 67100
Harrisburg, PA 17106-7100

Location:
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Camp Hill, PA 17011

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July 22, 2004

South Carolina Electric & Gas Company
1426 Main Street
Columbia, SC 29201

Attention Mr. Barry T. Burnette
Director Corporate and Depreciation Taxes
Plans and Payroll

Ladies & Gentlemen:

Pursuant to your request, we have conducted a depreciation study related to the gas plant of South Carolina Electric & Gas Company as of December 31, 2003. The attached report presents a description of the methods used in the estimation of depreciation, the summary of annual and accrued depreciation, the statistical support for the service life and net salvage estimates, and the detailed tabulations of annual and accrued depreciation.

Respectfully submitted,

GANNETT FLEMING, INC.

John J. Spanos

JOHN J. SPANOS
Vice President
Valuation and Rate Division

JJS:krm

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PART I. INTRODUCTION

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUALS
RELATED TO GAS PLANT
AS OF DECEMBER 31, 2003

PART I. INTRODUCTION

SCOPE

This report presents the results of the depreciation study prepared for South Carolina Electric & Gas Company ("Company") as applied to gas plant in service as of December 31, 2003. It relates to the concepts, methods and basic judgments which underlie recommended annual depreciation accrual rates related to current gas plant in service.

The service life and net salvage estimates resulting from the study were based on informed judgment which incorporated analyses of historical plant retirement data as recorded through 2003; a review of Company practice and outlook as they relate to plant operation and retirement; and consideration of current practice in the gas industry, including knowledge of service life and salvage estimates used for other gas properties.

PLAN OF REPORT

Part I includes brief statements of the scope and basis of the study. Part II presents descriptions of the methods used in the service life and salvage studies and the methods and procedures used in the calculation of depreciation. Part III presents the results of the study, including depreciation rates, accruals and calculated remaining lives.

BASIS OF STUDY

Depreciation

For most accounts, the annual depreciation was calculated by the straight line method using the average service life procedure and the remaining life basis. For certain General Plant accounts, the annual depreciation was based on amortization accounting. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group.

Survivor Curve and Net Salvage Estimates

The procedure for estimating survivor curves, which define service lives and remaining lives, consisted of compiling historical service life data for the plant accounts or other depreciable groups, analyzing the historical data base through the use of accepted techniques, and forecasting the survivor characteristics for each depreciable account or group. These forecasts were based on interpretations of the historical data analyses and the probable future. The combination of the historical data and the estimated future trend yields a complete pattern of life characteristics, i.e., a survivor curve, from which the average service life and remaining service life are derived.

The historical data analyzed for life estimation purposes were compiled through 2003 from the Company's plant accounting records. Such data included plant additions, retirements, transfers and other activity recorded by the Company for each of its plant accounts and subaccounts.

The estimates of net salvage by account incorporated a review of experienced costs of removal and salvage related to plant retirements by function, and consideration of trends

exhibited by the historical data. Each component of net salvage, i.e., cost of removal and salvage, was stated in dollars and as a percent of retirement.

An understanding of the function of the plant and information with respect to the reasons for past retirements and the expected causes of future retirements was obtained through field trips and discussions with operating and management personnel. The supplemental information obtained in this manner was considered in the interpretation and extrapolation of the statistical analyses.

Calculation of Depreciation

The depreciation accrual rates were calculated using the straight line method, the remaining life basis and the average service life depreciation procedure. The life span technique was used for certain facilities. In this technique, an average date of final retirement was estimated for each such facility, and the estimated survivor curves applied to each vintage were truncated at ages coinciding with the dates of final retirement.

The continuation of amortization accounting for certain accounts is recommended because of the disproportionate plant accounting effort required when compared to the minimal original cost of the large number of items in these accounts. An explanation of the calculation of annual and accrued amortization is presented on page II-30 of the report.

PART II. METHODS USED IN

THE ESTIMATION OF DEPRECIATION

PART II. METHODS USED IN THE ESTIMATION OF DEPRECIATION

DEPRECIATION

Depreciation, as defined in the Uniform System of Accounts, is the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of gas plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, requirements of public authorities, and, in the case of natural gas companies, the exhaustion of natural resources.

Depreciation, as used in accounting, is a method of distributing fixed capital costs, less net salvage, over a period of time by allocating annual amounts to expense. Each annual amount of such depreciation expense is part of that year's total cost of providing utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service, that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the straight line method of depreciation.

The calculation of annual depreciation based on the straight line method requires the estimation of average life and salvage. These subjects are discussed in the sections which follow.

SERVICE LIFE AND NET SALVAGE ESTIMATION

Average Service Life

The use of an average service life for a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve by plotting the number of units which survive at successive ages. A discussion of the general concept of survivor curves is presented. Also, the Iowa type survivor curves are reviewed.

Survivor Curves

The survivor curve graphically depicts the amount of property existing at each age throughout the life of an original group. From the survivor curve, the average life of the group, the remaining life expectancy, the probable life, and the frequency curve can be calculated. In Figure 1, a typical smooth survivor curve and the derived curves are illustrated. The average life is obtained by calculating the area under the survivor curve, from age zero to the maximum age, and dividing this area by the ordinate at age zero. The remaining life expectancy at any age can be calculated by obtaining the area under the curve, from the observation age to the maximum age, and dividing this area by the percent surviving at the observation age. For example, in Figure 1, the remaining life at age 30 is equal to the crosshatched area under the survivor curve divided by 29.5 percent surviving at age 30. The probable life at any age is developed by adding the age and remaining life. If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve presents the number of units retired in each age interval and is derived by obtaining the differences between the amount of property surviving at the beginning and at the end of each interval.

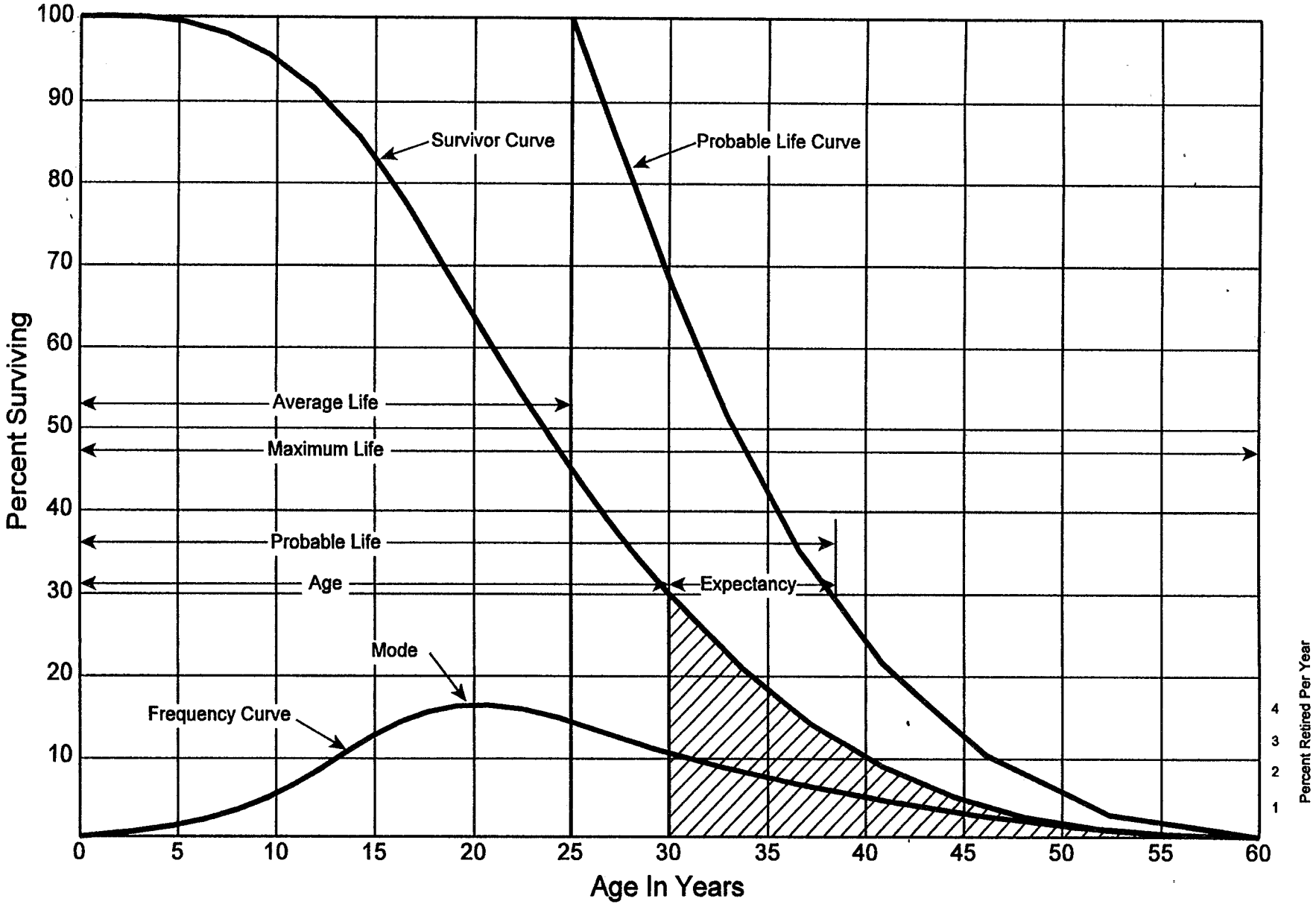

Figure 1. A Typical Survivor Curve and Derived Curves

Iowa Type Curves. The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. There are four families in the Iowa system, labeled in accordance with the location of the modes of the retirements in relationship to the average life and the relative height of the modes. The left moded curves, presented in Figure 2, are those in which the greatest frequency of retirement occurs to the left of, or prior to, average service life. The symmetrical moded curves, presented in Figure 3, are those in which the greatest frequency of retirement occurs at average service life. The right moded curves, presented in Figure 4, are those in which the greatest frequency occurs to the right of, or after, average service life. The origin moded curves, presented in Figure 5, are those in which the greatest frequency of retirement occurs at the origin, or immediately after age zero. The letter designation of each family of curves (L, S, R or O) represents the location of the mode of the associated frequency curve with respect to the average service life. The numbers represent the relative heights of the modes of the frequency curves within each family.

The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired. A report of the study which resulted in the classification of property survivor characteristics into 18 type curves, which constitute three of the four families, was published in 1935 in the form of the Experiment Station's Bulletin 125.[1] These type curves have also been presented in subsequent Experiment Station

[1]Winfrey, Robley. Statistical Analyses of Industrial Property Retirements. Iowa State College, Engineering Experiment Station, Bulletin 125. 1935.

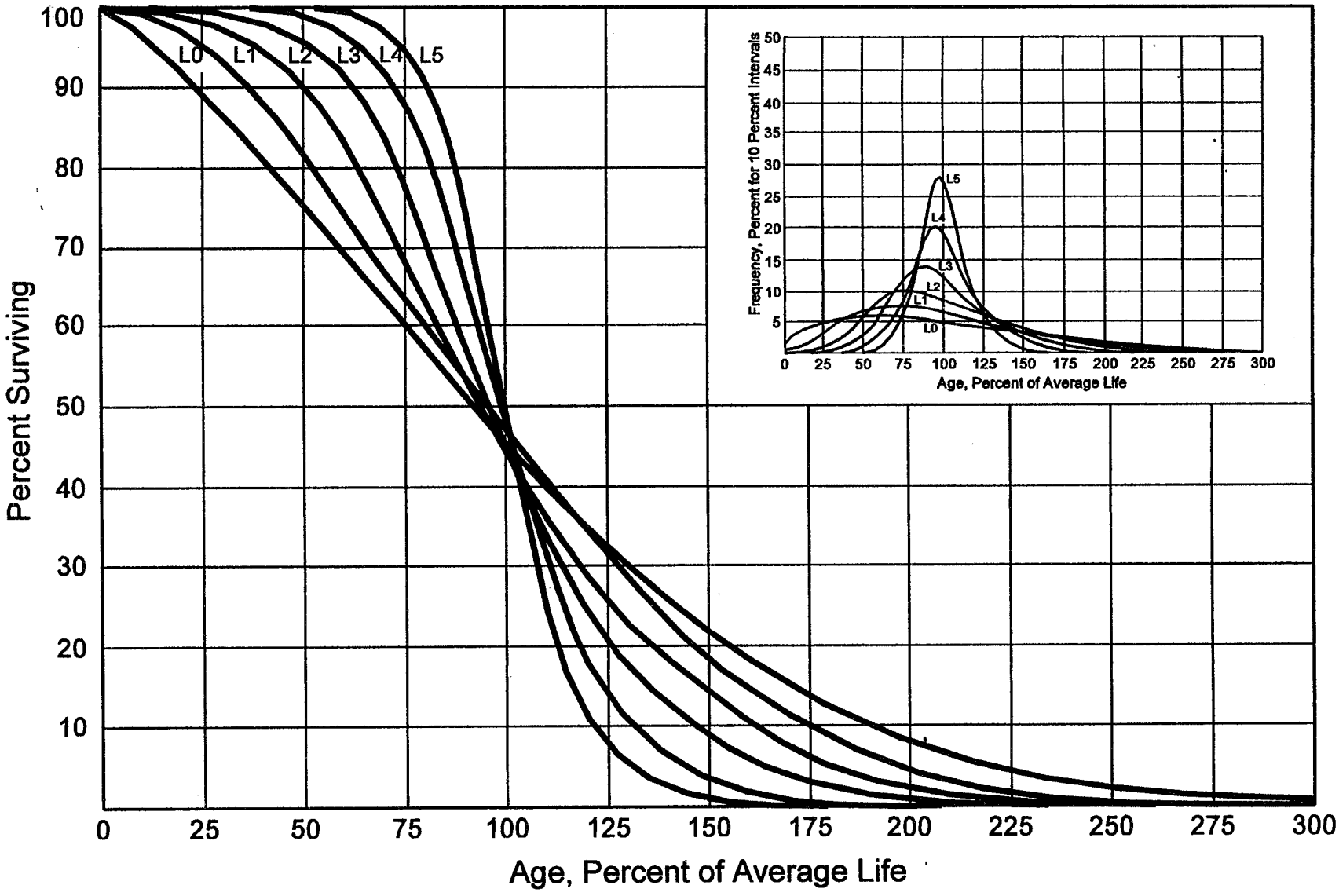

Figure 2. Left Modal or "L" Iowa Type Survivor Curves

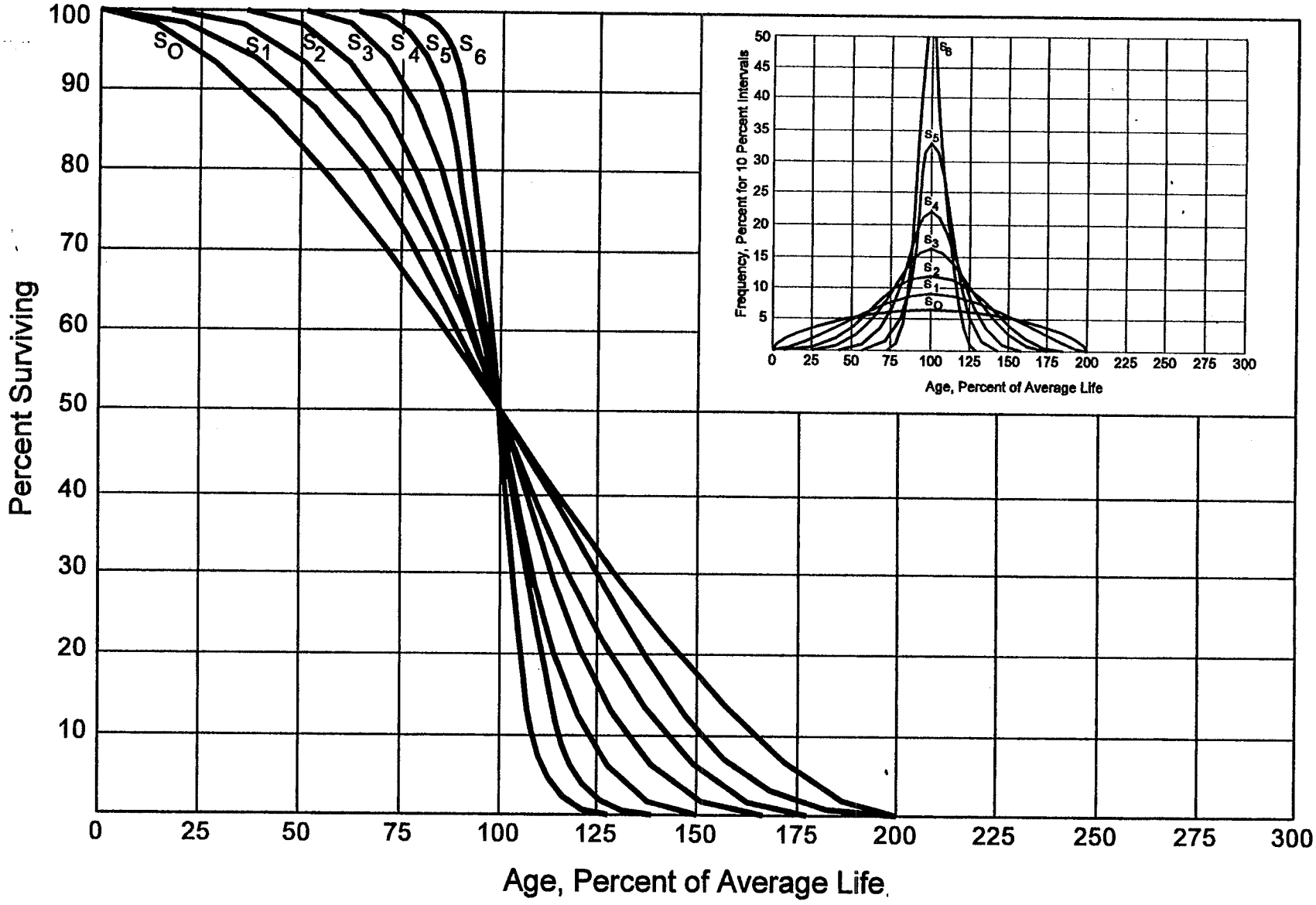

Figure 3. Symmetrical or "S" Iowa Type Survivor Curves

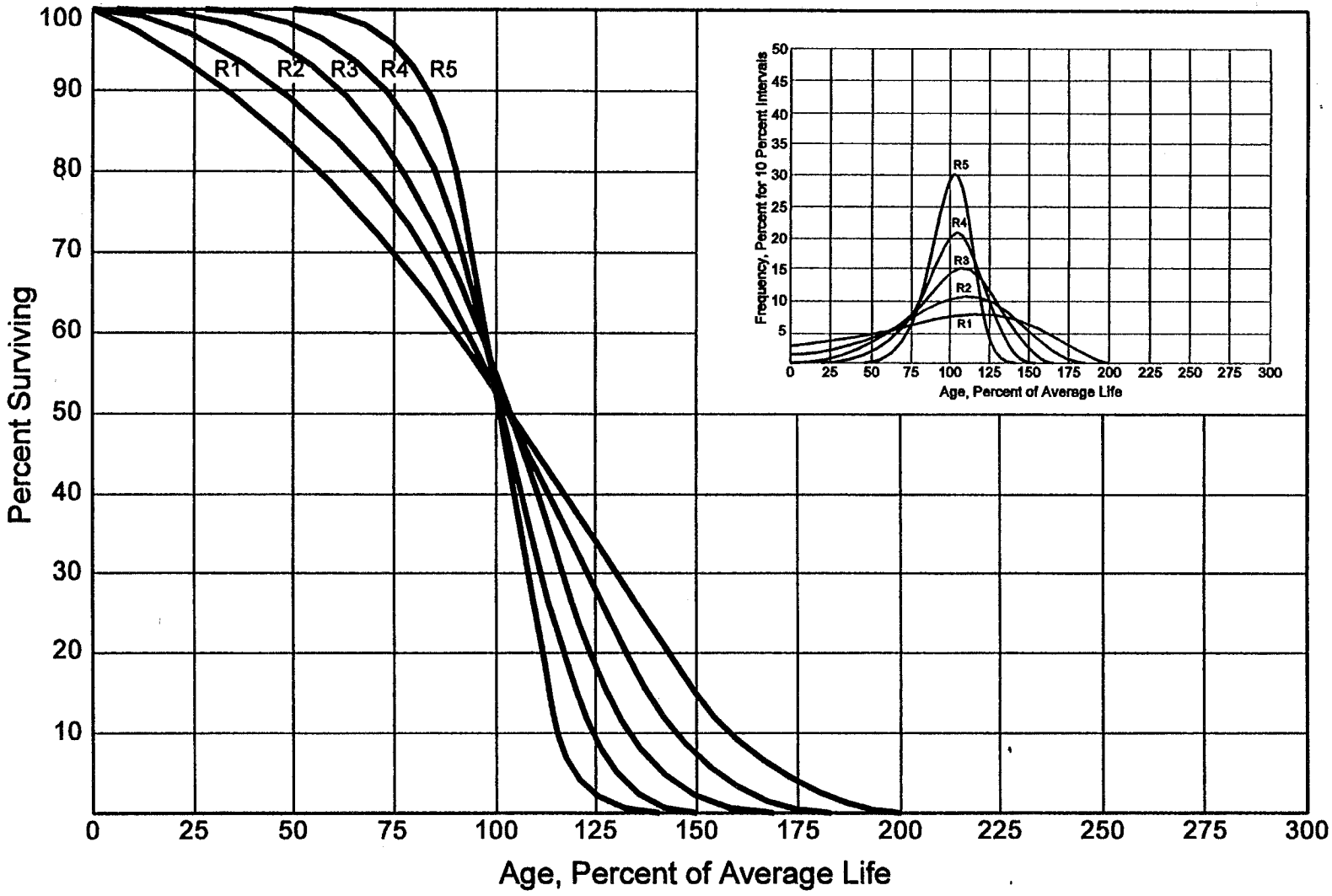

Figure 4. Right Modal or "R" Iowa Type Survivor Curves

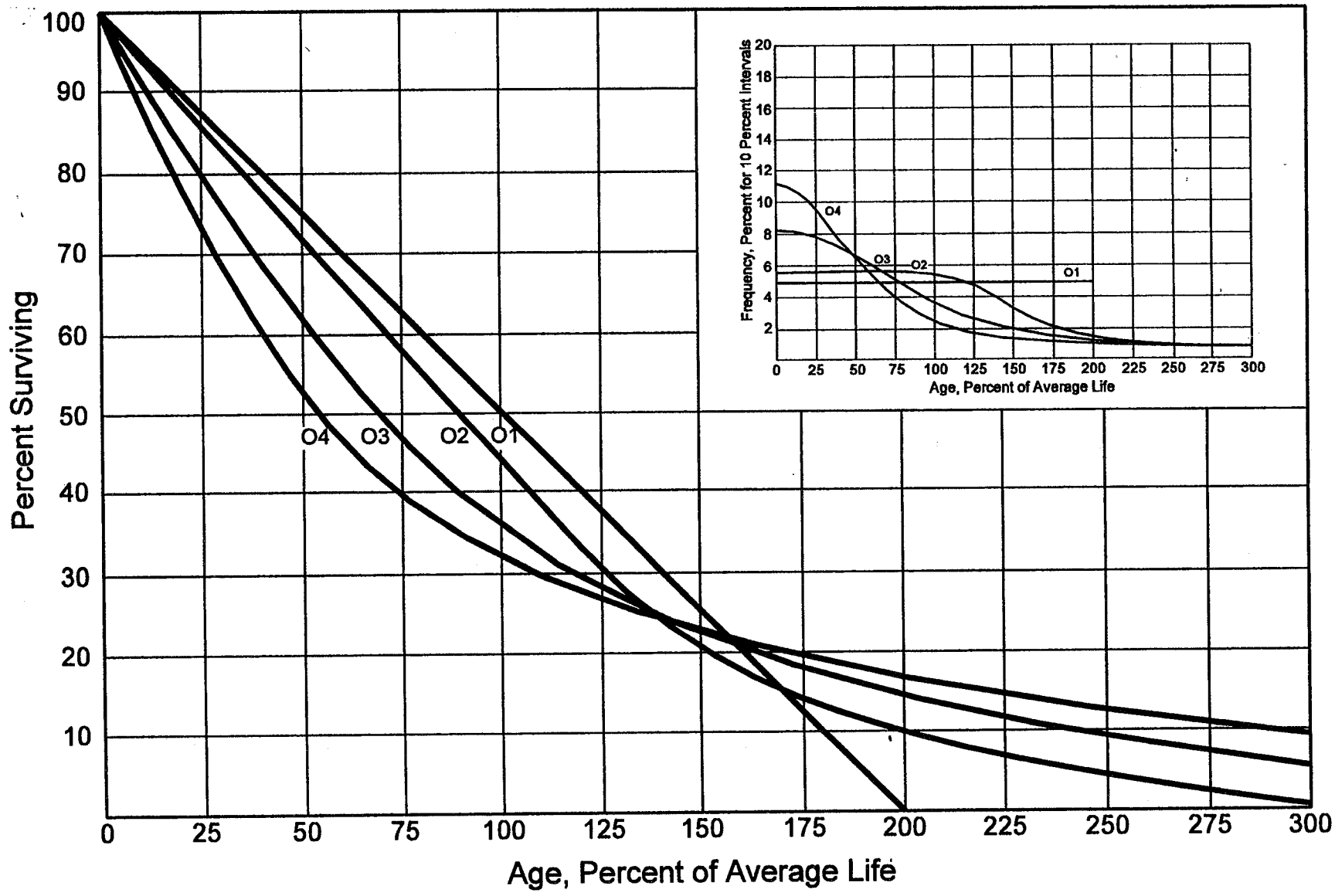

Figure 5. Origin Modal or "O" Iowa Type Survivor Curves

bulletins and in the text, "Engineering Valuation and Depreciation."[2] In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis[3] presenting his development of the fourth family consisting of the four O type survivor curves.

Retirement Rate Method of Analysis

The retirement rate method is an actuarial method of deriving survivor curves using the average rates at which property of each age group is retired. The method relates to property groups for which aged accounting experience is available or for which aged accounting experience is developed by statistically aging unaged amounts and is the method used to develop the original stub survivor curves in this study. The method (also known as the annual rate method) is illustrated through the use of an example in the following text, and is also explained in several publications, including "Statistical Analyses of Industrial Property Retirements,"[4] "Engineering Valuation and Depreciation,"[5] and "Depreciation Systems."[6]

The average rate of retirement used in the calculation of the percent surviving for the survivor curve (life table) requires two sets of data: first, the property retired during a period of observation, identified by the property's age at retirement; and second, the property exposed to retirement at the beginnings of the age intervals during the same

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[2]Marston, Anson, Robley Winfrey and Jean C. Hempstead. Engineering Valuation and Depreciation, 2nd Edition. New York, McGraw-Hill Book Company. 1953.

[3]Couch, Frank V. B., Jr. "Classification of Type O Retirement Characteristics of Industrial Property." Unpublished M.S. thesis (Engineering Valuation). Library, Iowa State College, Ames, Iowa. 1957.

[4]Winfrey, Robley, Supra Note 1.

[5]Marston, Anson, Robley Winfrey, and Jean C. Hempstead, Supra Note 2.

[6]Wolf, Frank K. and W. Chester Fitch. Depreciation Systems. Iowa State University Press. 1994

period. The period of observation is referred to as the experience band, and the band of years which represent the installation dates of the property exposed to retirement during the experience band is referred to as the placement band. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

Schedules of Annual Transactions in Plant Records. The property group used to illustrate the retirement rate method is observed for the experience band 1994-2003 during which there were placements during the years 1989-2003. In order to illustrate the summation of the aged data by age interval, the data were compiled in the manner presented in Tables 1 and 2 on pages II-12 and II-13. In Table 1, the year of installation (year placed) and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, $10,000 of the dollars invested in 1989 were retired in 1994. The $10,000 retirement occurred during the age interval between 4½ and 5½ years on the basis that approximately one-half of the amount of property was installed prior to and subsequent to July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age

TABLE 1. RETIREMENTS FOR EACH YEAR 1994-2003 SUMMARIZED BY AGE INTERVAL

Experience Band 1994-2003

Placement Band 1989-2003

Year Placed	Retirements, Thousands of Dollars During Year										Total During Age Interval	Age Interval
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1989	10	11	12	13	14	16	23	24	25	26	26	13½-14½
1990	11	12	13	15	16	18	20	21	22	19	44	12½-13½
1991	11	12	13	14	16	17	19	21	22	18	64	11½-12½
1992	8	9	10	11	11	13	14	15	16	17	83	10½-11½
1993	9	10	11	12	13	14	16	17	19	20	93	9½-10½
1994	4	9	10	11	12	13	14	15	16	20	105	8½-9½
1995		5	11	12	13	14	15	16	18	20	113	7½-8½
1996			6	12	13	15	16	17	19	19	124	6½-7½
1997				6	13	15	16	17	19	19	131	5½-6½
1998					7	14	16	17	19	20	143	4½-5½
1999						8	18	20	22	23	146	3½-4½
2000							9	20	22	25	150	2½-3½
2001								11	23	25	151	1½-2½
2002									11	24	153	½-1½
2003	–	–	–	–	–	–	–	–	–	13	80	0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606	

TABLE 2. OTHER TRANSACTIONS FOR EACH YEAR 1994-2003
SUMMARIZED BY AGE INTERVAL

Experience Band 1994-2003

Placement Band 1989-2003

Year Placed (1)	Acquisitions, Transfers, and Sales, Thousands of Dollars During Year 1994 (2)	1995 (3)	1996 (4)	1997 (5)	1998 (6)	1999 (7)	2000 (8)	2001 (9)	2002 (10)	2003 (11)	Total During Age Interval (12)	Age Interval (13)
1989	-	-	-	-	-	-	60[a]	-	-	-	-	13½-14½
1990	-	-	-	-	-	-	-	-	-	-	-	12½-13½
1991	-	-	-	-	-	-	-	-	-	-	-	11½-12½
1992	-	-	-	-	-	-	-	(5)[b]	-	-	60	10½-11½
1993	-	-	-	-	-	-	-	6[a]	-	-	-	9½-10½
1994		-	-	-	-	-	-	-	-	-	(5)	8½-9½
1995		-	-	-	-	-	-	-	-	-	6	7½-8½
1996			-	-	-	-	-	-	-	-	-	6½-7½
1997				-	-	-	-	(12)[b]	-	-	-	5½-6½
1998					-	-	-	-	22[a]	-	-	4½-5½
1999						-	-	(19)[b]	-	-	10	3½-4½
2000							-	-	-	-	-	2½-3½
2001								-	-	(102)[c]	(121)	1½-2½
2002									-	-	-	½-1½
2003	—	—	—	—	—	—	—	—	—	—	-	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	

[a] Transfer Affecting Exposures at Beginning of Year.
[b] Transfer Affecting Exposures at End of Year.
[c] Sale with Continued Use.
Parentheses denote Credit amount.

interval. For example, the total of $143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Table 1 immediately above the stairstep line drawn on the table beginning with the 1994 retirements of 1989 installations and ending with the 2003 retirements of the 1998 installations. Thus, the total amount of 143 for age interval 4½-5½ equals the sum of:

$$10 + 12 + 13 + 11 + 13 + 13 + 15 + 17 + 19 + 20.$$

In Table 2, other transactions which affect the group are recorded in a similar manner. The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements, but are used in developing the exposures at the beginning of each age interval.

Schedule of Plant Exposed to Retirement. The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Table 3 on page II-15.

The surviving plant at the beginning of each year from 1994 through 2003 is recorded by year in the portion of the table headed "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Table 3 for each successive year following the beginning balance or addition are obtained by adding or subtracting the net entries shown on Tables 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus the amount of plant shown at the beginning of each year are

TABLE 3. PLANT EXPOSED TO RETIREMENT JANUARY 1
OF EACH YEAR 1994-2003 SUMMARIZED BY AGE INTERVAL

Experience Band 1994-2003

Placement Band 1989-2003

Year Placed (1)	Exposures, Thousands of Dollars — Annual Survivors at the Beginning of the Year: 1994 (2)	1995 (3)	1996 (4)	1997 (5)	1998 (6)	1999 (7)	2000 (8)	2001 (9)	2002 (10)	2003 (11)	Total at Beginning of Age Interval (12)	Age Interval (13)
1989	255	245	234	222	209	195	239	216	192	167	167	13½-14½
1990	279	268	256	243	228	212	194	174	153	131	323	12½-13½
1991	307	296	284	271	257	241	224	205	184	162	531	11½-12½
1992	338	330	321	311	300	289	276	262	242	226	823	10½-11½
1993	376	367	357	346	334	321	307	297	280	261	1,097	9½-10½
1994	420[a]	416	407	397	386	374	361	347	332	316	1,503	8½-9½
1995		460[a]	455	444	432	419	405	390	374	356	1,952	7½-8½
1996			510[a]	504	492	479	464	448	431	412	2,463	6½-7½
1997				580[a]	574	561	546	530	501	482	3,057	5½-6½
1998					660[a]	653	639	623	628	609	3,789	4½-5½
1999						750[a]	742	724	685	663	4,332	3½-4½
2000							850[a]	841	821	799	4,955	2½-3½
2001								960[a]	949	926	5,719	1½-2½
2002									1,080[a]	1,069	6,579	½-1½
2003										1,220[a]	7,490	0-½
Total	1,975	2,382	2,824	3,318	3,872	4,494	5,247	6,017	6,852	7,799	44,780	

[a] Additions during the year.

the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 1998 are calculated in the following manner:

Exposures at age 0	= amount of addition	= $750,000
Exposures at age ½	= $750,000 - $ 8,000	= $742,000
Exposures at age 1½	= $742,000 - $18,000	= $724,000
Exposures at age 2½	= $724,000 - $20,000 - $19,000	= $685,000
Exposures at age 3½	= $685,000 - $22,000	= $663,000

For the entire experience band 1994-2003, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Table 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

255 + 268 + 284 + 311 + 334 + 374 + 405 + 448 + 501 + 609.

Original Life Table. The original life table, illustrated in Table 4 on page II-17, is developed from the totals shown on the schedules of retirements and exposures, Tables 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retire-

TABLE 4. ORIGINAL LIFE TABLE
CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 1994-2003 Placement Band 1989-2003

(Exposure and Retirement Amounts are in Thousands of Dollars)

Age at Beginning of Interval (1)	Exposures at Beginning of Age Interval (2)	Retirements During Age Interval (3)	Retirement Ratio (4)	Survivor Ratio (5)	Percent Surviving at Beginning of Age Interval (6)
0.0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.60
12.5	323	44	0.1362	0.8638	48.90
13.5	167	26	0.1557	0.8443	42.24
					35.66
Total	44,780	1,606			

Column 2 from Table 3, Column 12, Plant Exposed to Retirement.
Column 3 from Table 1, Column 12, Retirements for Each Year.
Column 4 = Column 3 divided by Column 2.
Column 5 = 1.0000 minus Column 4.
Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval.

ment ratio. The percent surviving is developed by starting with 100% at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e., one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

Percent surviving at age 4½	=	88.15				
Exposures at age 4½	=	3,789,000				
Retirements from age 4½ to 5½	=	143,000				
Retirement Ratio	=	143,000	÷	3,789,000	=	0.0377
Survivor Ratio	=	1.000	-	0.0377	=	0.9623
Percent surviving at age 5½	=	(88.15)	x	(0.9623)	=	84.83

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Tables 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless.

The original survivor curve is plotted from the original life table (column 6, Table 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.

Smoothing the Original Survivor Curve. The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100% to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percents surviving at ages in years. Each original survivor curve

was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Table 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0. In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group, assuming no contrary relevant factors external to the analysis of historical data.

Field Trips

In order to be familiar with the operation of the Company and to observe representative portions of the plant, a field trip was conducted. A general understanding of the function of the plant and information with respect to the reasons for past retirements and the expected future causes of retirements was obtained during this trip. This knowledge and information were incorporated in the interpretation and extrapolation of the statistical analyses.

The plant facilities visited on February 24 and 25, 2004, are as follows:

February 24, 2004

Lucius Road Propane Plant
Bald Hill Town Border Station
Columbia Meter Shop - Shakespeare Road
Shakespeare Road Gas Operations
Florence Gas Operations
Florence Town Border Station
N. Irby Street and Lucas Street Regulating Station
Quincy Restaurant Meter Set
Comfort Inn Meter Set

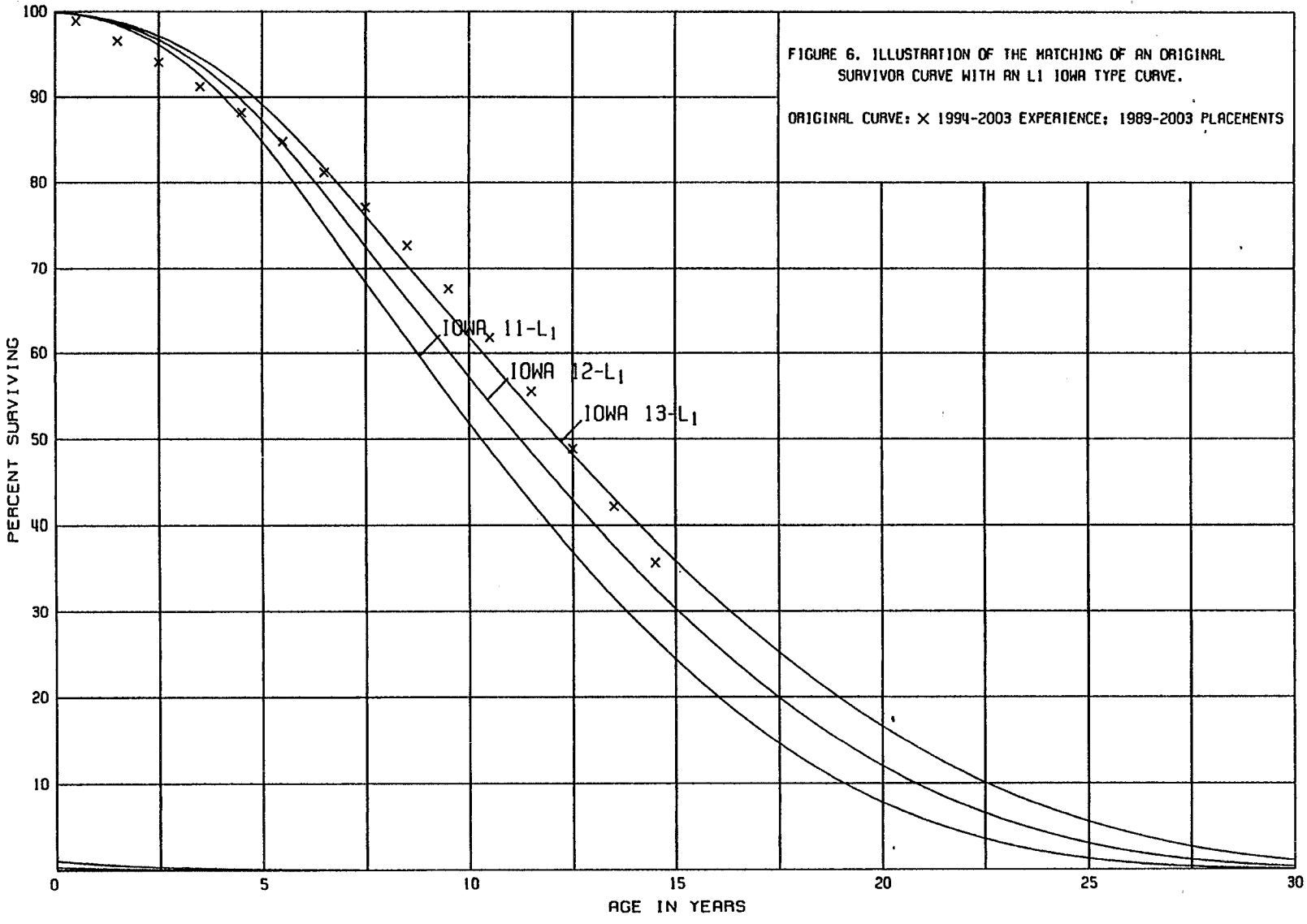

FIGURE 6. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN L1 IOWA TYPE CURVE.

ORIGINAL CURVE: × 1994-2003 EXPERIENCE; 1989-2003 PLACEMENTS

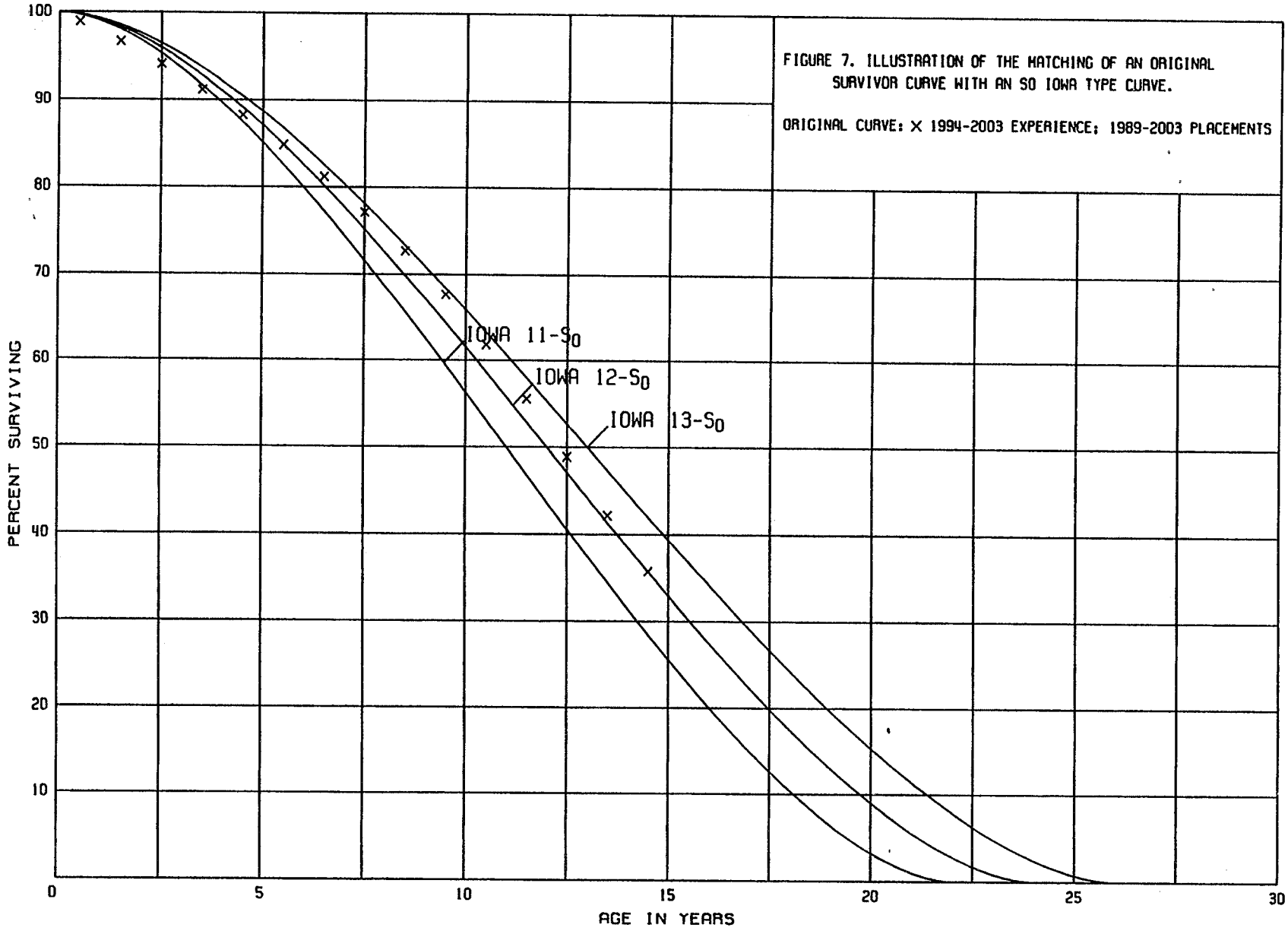

FIGURE 7. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN SO IOWA TYPE CURVE.

ORIGINAL CURVE: X 1994-2003 EXPERIENCE; 1989-2003 PLACEMENTS

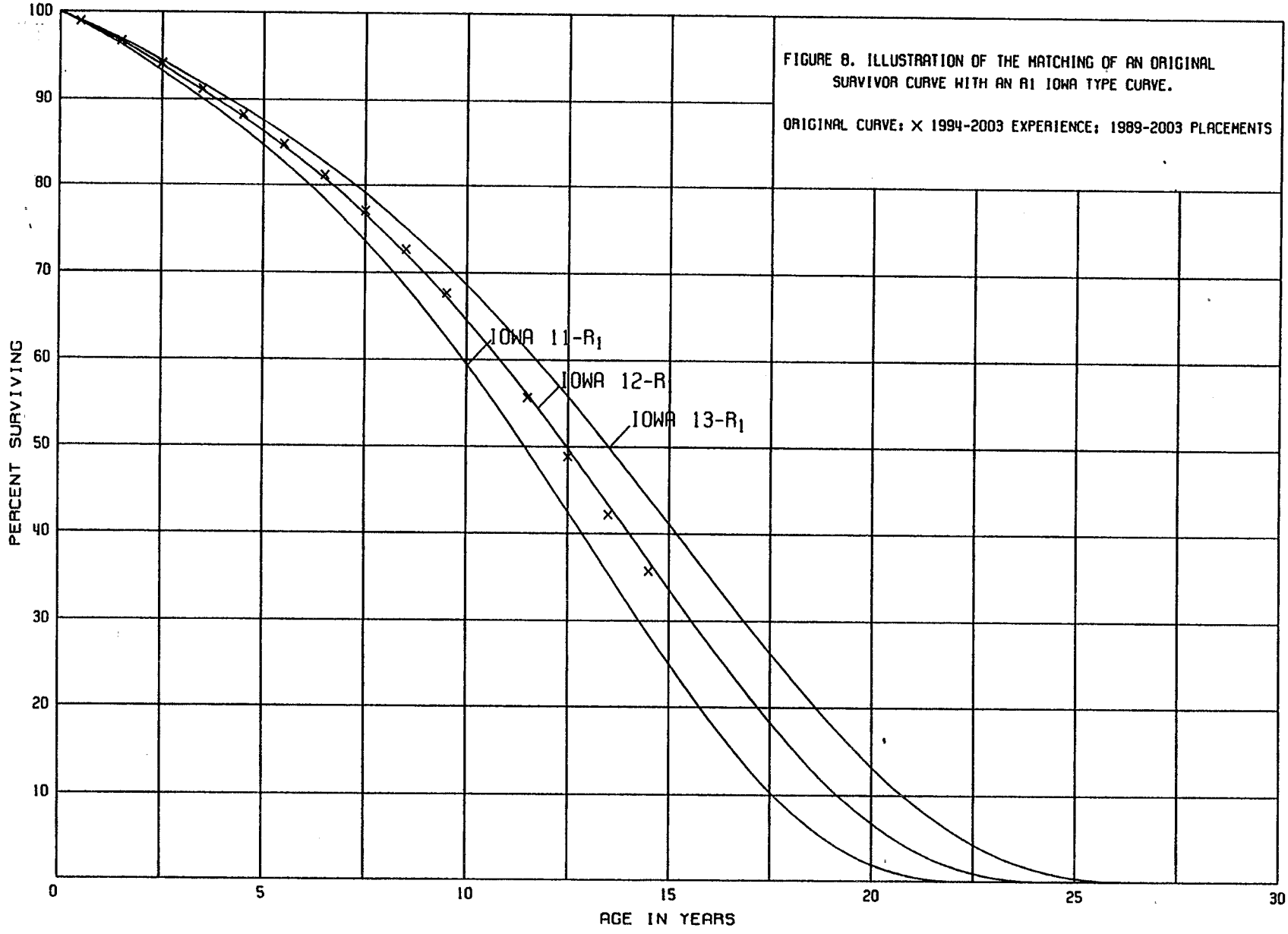

FIGURE 8. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH AN R1 IOWA TYPE CURVE.

ORIGINAL CURVE: × 1994-2003 EXPERIENCE; 1989-2003 PLACEMENTS

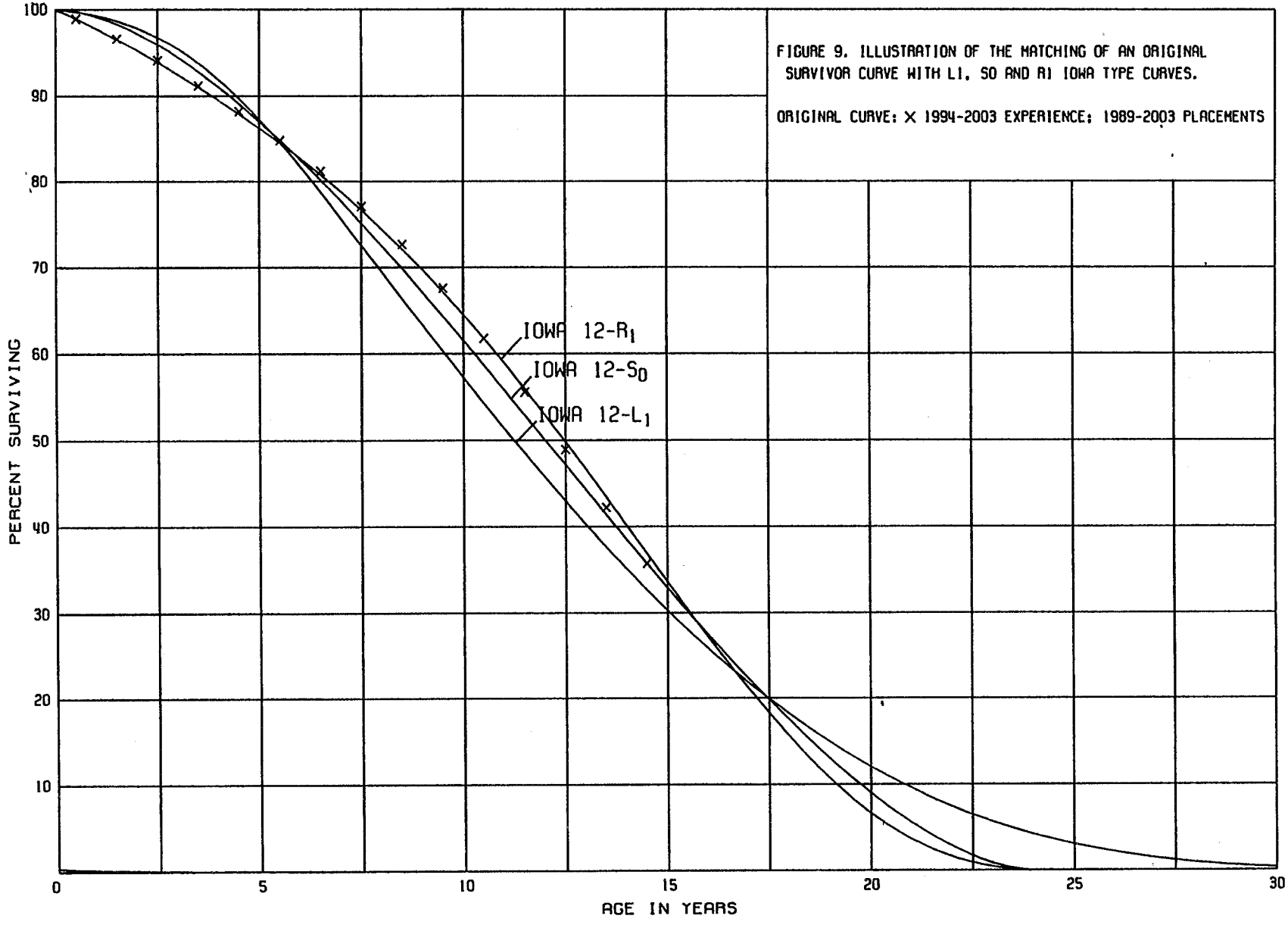

FIGURE 9. ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH L1, S0 AND R1 IOWA TYPE CURVES.

ORIGINAL CURVE: X 1994-2003 EXPERIENCE; 1989-2003 PLACEMENTS

February 25, 2004
Charleston Gas Operations
Faber Place Propane Plant
Faber Place Regulating Station
Stark Industrial Park Regulating Station

Service Life Considerations

The service life estimates were based on judgment which considered a number of factors. The primary factors were the statistical analyses of data; current Company policies and outlook as determined during conversations with management; and the survivor curve estimates from previous studies of this company and other gas utility companies.

For 12 of the plant accounts and subaccounts for which survivor curves were estimated, the statistical analyses using the retirement rate method resulted in good to excellent indications of the survivor patterns experienced. These accounts represent 95 percent of depreciable plant. Generally, the information external to the statistics led to no significant departure from the indicated survivor curves for the accounts listed below.

PRODUCTION PLANT
- 405.00 Structures and Improvements
- 411.00 Liquefied Petroleum Gas Equipment
- 420.00 Other Equipment

DISTRIBUTION PLANT
- 476.00 Mains
- 478.00 Measuring and Regulating Station Equipment
- 479.00 City Gate Check StationS
- 480.00 Services
- 481.00 Meters
- 485.10 Ind. Measuring and Regulating Station Equip. - Commercial
- 485.20 Ind. Measuring and Regulating Station Equip. - Industrial

GENERAL PLANT
- 490.80 Structures and Improvements - Leasehold Office
- 490.90 Structures and Improvements - Leasehold Warehouse

Account 476.00, Mains, is used to illustrate the manner in which the study was conducted for the groups in the preceding list. Aged plant accounting data for mains have

been compiled for the years 1991 through 2003. These data have been coded in the course of the Company's normal record keeping according to account or property group, type of transaction, year in which the transaction took place, and year in which the gas plant was placed in service. The retirements, other plant transactions, and plant additions were analyzed by the retirement rate method.

The survivor curve estimate is based on the statistical indications for the period 1991 through 2003. The Iowa 60-R4 is a reasonable fit of the original survivor curve. The 60-year service life is within the typical service life range of 50 to 70 years for mains. The 60-year life reflects the Company's plans to continue current practices of replacement of mains that leak or older mains which need to meet current demands.

The survivor curve estimates for the remaining accounts were based on judgment incorporating the statistical analyses and previous studies for this and other gas utilities.

Salvage Analysis

The estimates of net salvage by account were based in part on historical data compiled through 2003. Cost of removal and salvage were expressed as percents of the original cost of plant retired, both on annual and three-year moving average bases. The most recent five-year average also was calculated for consideration. The net salvage estimates by account are expressed as a percent of the original cost of plant retired.

Net Salvage Considerations

The estimates of future net salvage are expressed as percentages of surviving plant in service, i.e., all future retirements. In cases in which removal costs are expected to exceed salvage receipts, a negative net salvage percentage is estimated. The net salvage estimates were based on judgment which incorporated analyses of historical cost of

removal and salvage data, expectations with respect to future removal requirements and markets for retired equipment and materials.

Statistical analyses of historical data for the period 1986 through 2003 for gas plant were analyzed. The analyses contributed significantly toward the net salvage estimates for 12 plant accounts, representing 98 percent of the depreciable plant, as follows:

Steam Production Plant
- 405.00 Structures and Improvements
- 411.00 Liquefied Petroleum Gas Equipment

Distribution Plant
- 475.00 Structures and Improvements
- 476.00 Mains
- 478.00 Measuring and Regulating Station Equipment
- 479.00 City Gate Check Stations
- 480.00 Services
- 481.00 Meters
- 485.10 Ind. Measuring and Regulating Station Equip. - Commercial
- 485.20 Ind. Measuring and Regulating Station Equip. - Industrial

General Plant
- 490.10 Structures and Improvements - Office
- 490.20 Structures and Improvements - Warehouse

Account 480.00, Services, is used to illustrate the manner in which the study was conducted for the groups in the preceding list. Net salvage data for the period 1986 through 2003 were analyzed for this account. The data include cost of removal, gross salvage and net salvage amounts and each of these amounts is expressed as a percent of the original cost of regular retirements. Three-year moving averages for the 1986-1988 through 2001-2003 periods were computed to smooth the annual amounts.

Cost of removal has fluctuated throughout the eighteen-year period. The primary cause of the fluctuations in cost of removal relates to the amount of services removed by outside contractors as compared to Company personnel and the increasing effort needed to replace a service. Cost of removal for the most recent five years averaged 140 percent.

Gross salvage has been relatively low throughout the period. The most recent five-year average of 0 percent gross salvage reflects recent trends toward no salvage value for older services especially as more services are changed from steel to plastic.

The net salvage percent based on the overall period 1986 through 2003 is 72 percent negative net salvage and based on the most recent five-year period is 140 percent. The range of estimates made by other gas companies for Services is negative 40 to negative 200 percent. The net salvage estimate for services is negative 75 percent, is within the range of other estimates and reflects slight movement toward more negative net salvage than the last eighteen years indicate. This movement toward the more negative percent considers the fact that gross salvage is likely to stay at zero in the future and cost of removal will continue to increase.

The net salvage percents for the remaining accounts representing 2 percent of plant were based on judgment incorporating estimates of previous studies of this and other gas utilities.

CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

After the survivor curve and salvage are estimated, the annual depreciation accrual rate can be calculated. In the average service life procedure, the annual accrual rate is computed by the following equation:

$$\textit{Annual Accrual Rate, Percent} = \frac{(100\% - \textit{Net Salvage, Percent})}{\textit{Average Service Life}}.$$

The calculated accrued depreciation for each depreciable property group represents that portion of the depreciable cost of the group which will not be allocated to expense through future depreciation accruals, if current forecasts of life characteristics are used as a basis for straight line depreciation accounting.

The accrued depreciation calculation consists of applying an appropriate ratio to the surviving original cost of each vintage of each account, based upon the attained age and the estimated survivor curve. The accrued depreciation ratios are calculated as follows:

$$Ratio = (1 - \frac{Average\ Remaining\ Life\ Expectancy}{Average\ Service\ Life}) (1 - Net\ Salvage,\ Percent).$$

The application of these procedures is described for a single unit of property and a group of property units. Salvage is omitted from the description for ease of application.

Single Unit of Property

The calculation of straight line depreciation for a single unit of property is straightforward. For example, if a $1,000 unit of property attains an age of four years and has a life expectancy of six years, the annual accrual over the total life is:

$$\$1,000\ (1 - \frac{6}{10}) = \$400.$$

The accrued depreciation is:

$$\frac{\$1,000}{(4 + 6)} = \$100\ per\ year.$$

Group Depreciation Procedures

When more than a single item of property is under consideration, a group procedure for depreciation is appropriate because normally all of the items within a group do not have identical service lives, but have lives that are dispersed over a range of time. There are two primary group procedures, namely, average service life and equal life group.

Remaining Life Annual Accruals. For the purpose of calculating remaining life accruals as of December 31, 2003, the depreciation reserve for each plant account is allocated among vintages in proportion to the calculated accrued depreciation for the

account. Explanations of remaining life accruals and calculated accrued depreciation follow.

Average Service Life Procedure. In the average service life procedure, the remaining life annual accrual for each vintage is determined by dividing future book accruals (original cost less book reserve) by the average remaining life of the vintage. The average remaining life is a directly weighted average derived from the estimated future survivor curve in accordance with the average service life procedure.

The calculated accrued depreciation for each depreciable property group represents that portion of the depreciable cost of the group which would not be allocated to expense through future depreciation accruals, if current forecasts of life characteristics are used as the basis for such accruals. The accrued depreciation calculation consists of applying an appropriate ratio to the surviving original cost of each vintage of each account, based upon the attained age and service life. The straight line accrued depreciation ratios are calculated as follows for the average service life procedure:

$$Ratio = 1 - \frac{Average\ Remaining\ Life}{Average\ Service\ Life}.$$

CALCULATION OF ANNUAL AND ACCRUED AMORTIZATION

Amortization is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized. Normally, the distribution of the amount is in equal amounts to each year of the amortization period.

The calculation of annual and accrued amortization requires the selection of an amortization period. The amortization periods used in this report were based on judgment

which incorporated a consideration of the period during which the assets will render most of their service, the amortization period and service lives used by other utilities and the service life estimates previously used for the asset under depreciation accounting.

Amortization accounting is proposed for certain General Plant accounts that represent numerous units of property, but a very small portion of depreciable gas plant in service. The accounts and their amortization periods are as follows:

Account		Amortization Period, Years
491.10	Office Furniture and Equipment - Furniture	20
491.20	Office Furniture and Equipment - EDP	5
491.30	Office Furniture and Equipment - Data Handling	20
493	Stores Equipment	25
494.10	Tools, Shop, Garage Equipment - Hand Tools	20
494.20	Tools, Shop, Garage Equipment - Line Tools	20
494.30	Tools, Shop, Garage Equipment - Shop Tools	20
494.40	Tools, Shop, Garage Equipment - Garage	20
495.10	Laboratory Equipment - Meter Test	20
495.20	Laboratory Equipment - Other Lab Test	20
495.30	Laboratory Equipment - Field Test	20
497	Communication Equipment	8
498	Miscellaneous Equipment	15

The calculated accrued amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the original cost by the period of amortization for the account.

III-1

PART III. RESULTS OF STUDY

PART III. RESULTS OF STUDY

QUALIFICATION OF RESULTS

The calculated annual depreciation accrual rates are the principal results of the study. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate annual depreciation accrual rates. An assumption that accrual rates can remain unchanged over a long period of time implies a disregard for the inherent variability in service lives and salvage and for the change of the composition of property in service. The annual accrual rates were calculated in accordance with the straight line remaining life method of depreciation using the average service life procedure based on estimates which reflect considerations of current historical evidence and expected future conditions.

The annual depreciation accrual rates are applicable specifically to the gas plant in service as of December 31, 2003. For most plant accounts, the application of such rates to future balances that reflect additions subsequent to December 31, 2003, is reasonable for a period of three to five years.

DESCRIPTION OF DEPRECIATION TABULATIONS

A summary of the results of the study, as applied to the original cost of gas plant as of December 31, 2003, is presented on page III-3 of this report. The schedule sets forth the original cost, the book depreciation reserve, future accruals, the calculated annual depreciation rate and amount, and the composite remaining life related to gas plant.

SOUTH CAROLINA ELECTRIC AND GAS COMPANY

ESTIMATED SURVIVOR CURVES, NET SALVAGE PERCENT, ORIGINAL COST, BOOK RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO GAS PLANT AT DECEMBER 31, 200

Depreciable Group (1)	Survivor Curve (2)	Net Salvage Percent (3)	Original Cost (4)	Book Reserve (5)	Future Accruals (6)	Annual Accrual Amount (7)	Composite Remaining Life (8)	Annual Accrual Rate Percent (9)
Depreciable Gas Plant								
Production Plant								
405.00 Structures and Improvements	25-S3	0	1,804,031.54	891,542	912,490	92,186	9.9	5.11
411.00 Liquefied Petroleum Gas Equipment	28-R2	15	9,741,954.39	5,764,392	2,516,270	141,256	17.8	1.45
420.00 Other Equipment	22-R2	0	455,151.38	48,864	406,288	29,881	13.6	6.57
Total Production Plant			**12,001,137.31**	**6,704,798**	**3,835,048**	**263,323**		2.19
Distribution Plant								
475.00 Structures and Improvements	40-S1	(5)	657,131.52	260,333	429,655	15,438	27.8	2.35
476.00 Mains	60-R4	(25)	196,922,046.56	89.167,511	156,985,047	3,375,659	46.5	1.71
477.00 Compressor Station Equipment	15-SQ	0	11,767.71	12,036	(268)	0	-	0.00
478.00 Measuring & Regulating Station Equipment	55-R3	(40)	3,239,559.61	1,155,094	3,380,289	78,790	42.9	2.43
479.00 City Gate Check Station	55-R3	(40)	138,132.83	29,681	163,705	3,519	46.5	2.55
480.00 Services	49-R4	(75)	146,463,547.35	58,079,853	198,231,354	5,895,708	33.6	4.03
481.00 Meters	42-R1.5	(15)	51,861,689.65	21,077,237	38,563,709	1,205,361	32.0	2.32
485.10 Industrial Measuring & Regulating Station Equipment - Commerical	58-R2	(7)	1,908,723.81	561,909	1,480,424	29,301	50.5	1.54
485.20 Industrial Measuring & Regulating Station Equipment - Industrial	58-R2	(7)	4,156,297.14	1,246,124	3,201,117	63,170	50.7	1.52
487.00 Other Equipment.	20-S0.5	0	116,808.33	40,821	75,988	7,713	9.9	6.60
Total Distribution Plant			**405,475,704.51**	**171,630,599**	**402,511,020**	**10,674,659**		2.63
General Plant								
490.10 Structures and Improvements - Office	40-S1	(5)	12,357,553.40	2,611,188	10,346,830	354,232	29.2	2.87
490.20 Structures and Improvements - Warehouse	40-S1	(5)	673,807.18	198,247	524,045	19,977	26.2	2.96
490.80 Structures and Improvements - Leasehold Office	15-S2	0	36,676.43	20,258	20,135	3,347	6.0	9.13
490.90 Structures and Improvements - Leasehold Warehouse	15-S2	0	6,776.75	2,756	2,920	730	4.0	10.77
491.10 Office Furniture and Equipment	20-SQ	0	1,068,162.68	686,739	381,423	55,737	6.8	5.22
491.20 Office Furniture and Equipment - Information System EDP	5-SQ	0	1,105,664.39	849,992	255,673	189,267	1.4	17.12
491.30 Office Furniture and Equipment - Office Data Handling	20-SQ	0	178,815.92	112,388	66,428	11,279	5.9	6.31
493.00 Stores Equipment	25-SQ	0	52,428.06	34,711	17,716	2,598	6.8	4.96
494.10 Tools, Shop and Garage Equipment - Power Hand Tools	20-SQ	0	697,886.30	371,255	275,469	41,233	6.7	5.91
494.20 Tools, Shop and Garage Equipment - Line Tools	20-SQ	0	2,105,720.45	788,100	1,374,809	124,461	11.1	5.91
494.30 Tools, Shop and Garage Equipment - Shop Tools	20-SQ	0	42,065.73	9,872	30,834	2,187	14.1	5.20
494.40 Tools, Shop and Garage Equipment - Garage	20-SQ	0	176,665.82	33,865	138,134	9,136	15.1	5.17
495.10 Laboratory Equipment - Meter Test	15-SQ	0	26,371.75	7,940	18,172	2,349	7.7	8.91
495.20 Laboratory Equipment - Other Lab Test	15-SQ	0	227,712.91	153,455	78,220	43,830	1.8	19.25
495.30 Laboratory Equipment - Field Test	15-SQ	0	322,604.56	113,946	204,954	35,349	5.8	10.96
497.00 Communication Equipment	8-SQ	0	1,331,932.08	809,186	522,747	266,373	2.0	20.00
498.00 Miscellaneous Equipment	15-SQ	0	528,888.60	172,740	356,148	58,707	6.1	11.10
Total General Plant			**20,939,733.01**	**6,976,638**	**14,614,657**	**1,220,792**		5.83
Total Depreciable Gas Plant			**438,416,574.83**	**185,312,035**	**420,960,725**	**12,158,774**	34.6	2.77

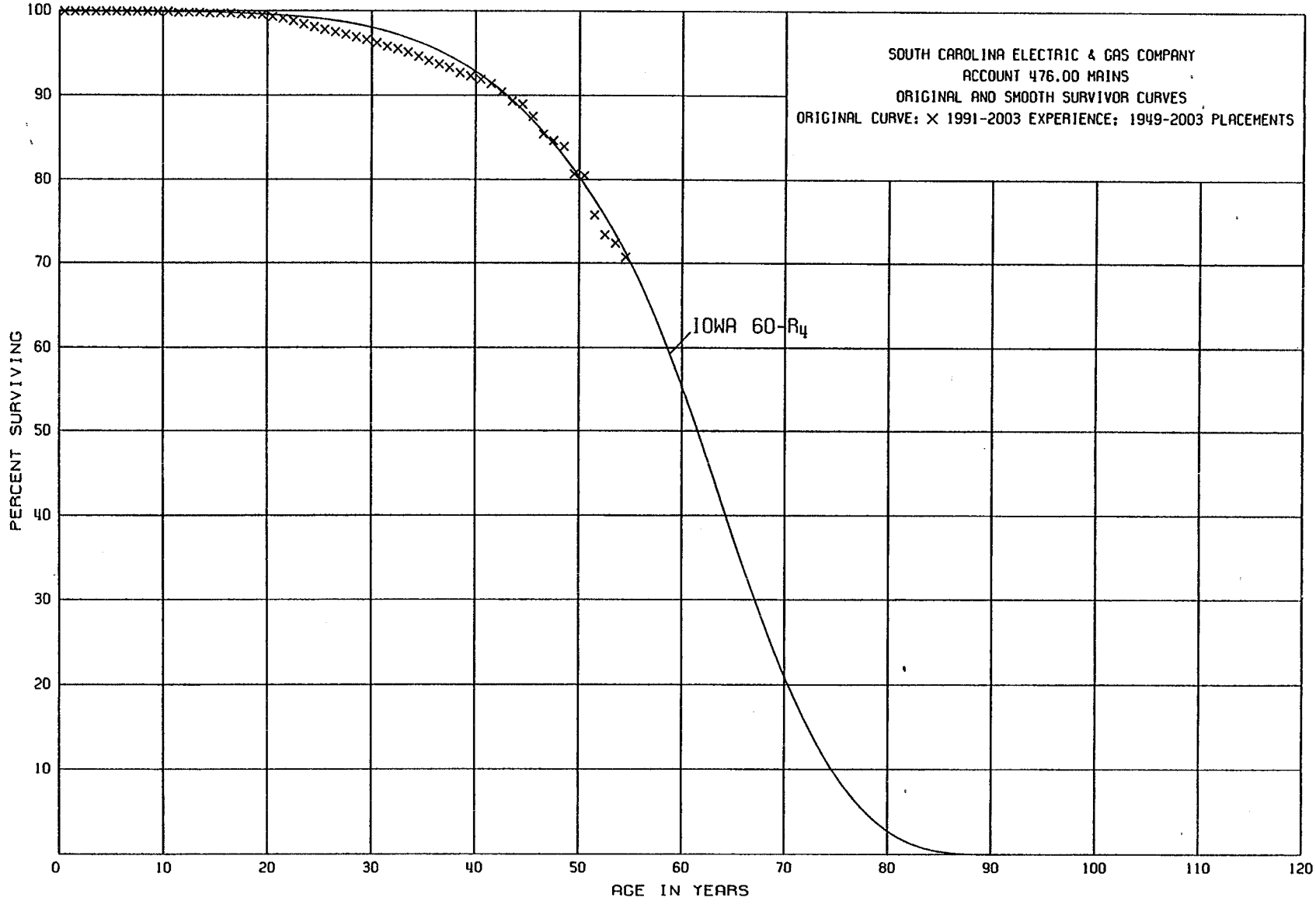

Exhibit No. ____ (JJS-2)
Page 1 of 3

SOUTH CAROLINA ELECTRIC & GAS COMPANY

ACCOUNT 476.00 MAINS

ORIGINAL LIFE TABLE

PLACEMENT BAND 1949-2003 EXPERIENCE BAND 1991-2003

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
0.0	89,875,452	4,799	0.0001	0.9999	100.00
0.5	90,352,930	1,957	0.0000	1.0000	99.99
1.5	92,212,177	7,339	0.0001	0.9999	99.99
2.5	92,198,722	8,204	0.0001	0.9999	99.98
3.5	88,740,750	10,591	0.0001	0.9999	99.97
4.5	87,896,464	11,279	0.0001	0.9999	99.96
5.5	88,655,668	17,370	0.0002	0.9998	99.95
6.5	86,832,963	14,268	0.0002	0.9998	99.93
7.5	81,378,402	15,072	0.0002	0.9998	99.91
8.5	78,498,193	16,915	0.0002	0.9998	99.89
9.5	78,274,997	17,229	0.0002	0.9998	99.87
10.5	76,133,876	20,062	0.0003	0.9997	99.85
11.5	71,108,163	19,630	0.0003	0.9997	99.82
12.5	65,131,901	15,672	0.0002	0.9998	99.79
13.5	59,794,769	20,924	0.0003	0.9997	99.77
14.5	53,140,476	19,632	0.0004	0.9996	99.74
15.5	45,985,463	21,738	0.0005	0.9995	99.70
16.5	39,027,374	23,482	0.0006	0.9994	99.65
17.5	29,537,312	18,307	0.0006	0.9994	99.59
18.5	26,138,112	20,625	0.0008	0.9992	99.53
19.5	26,298,423	49,192	0.0019	0.9981	99.45
20.5	26,544,138	51,141	0.0019	0.9981	99.26
21.5	27,039,393	69,768	0.0026	0.9974	99.07
22.5	26,130,198	103,115	0.0039	0.9961	98.81
23.5	25,524,695	91,368	0.0036	0.9964	98.42
24.5	26,624,204	87,035	0.0033	0.9967	98.07
25.5	27,871,453	85,358	0.0031	0.9969	97.75
26.5	30,158,912	92,154	0.0031	0.9969	97.45
27.5	31,645,856	99,361	0.0031	0.9969	97.15
28.5	32,972,113	93,986	0.0029	0.9971	96.85
29.5	33,859,714	118,802	0.0035	0.9965	96.57
30.5	34,009,726	140,677	0.0041	0.9959	96.23
31.5	32,813,530	134,407	0.0041	0.9959	95.84
32.5	28,100,720	109,841	0.0039	0.9961	95.45
33.5	25,645,424	138,538	0.0054	0.9946	95.08
34.5	22,437,482	113,063	0.0050	0.9950	94.57
35.5	20,166,241	87,445	0.0043	0.9957	94.10
36.5	18,554,155	85,574	0.0046	0.9954	93.70
37.5	16,359,899	95,681	0.0058	0.9942	93.27
38.5	14,439,201	69,529	0.0048	0.9952	92.73

SOUTH CAROLINA ELECTRIC & GAS COMPANY

ACCOUNT 476.00 MAINS

ORIGINAL LIFE TABLE, CONT.

PLACEMENT BAND 1949-2003 EXPERIENCE BAND 1991-2003

AGE AT BEGIN OF INTERVAL	EXPOSURES AT BEGINNING OF AGE INTERVAL	RETIREMENTS DURING AGE INTERVAL	RETMT RATIO	SURV RATIO	PCT SURV BEGIN OF INTERVAL
39.5	11,762,248	47,934	0.0041	0.9959	92.28
40.5	9,984,378	55,578	0.0056	0.9944	91.90
41.5	9,341,166	102,556	0.0110	0.9890	91.39
42.5	7,513,477	92,244	0.0123	0.9877	90.38
43.5	5,604,173	19,074	0.0034	0.9966	89.27
44.5	4,458,516	71,410	0.0160	0.9840	88.97
45.5	3,664,196	87,527	0.0239	0.9761	87.55
46.5	2,424,374	22,621	0.0093	0.9907	85.46
47.5	1,873,480	14,578	0.0078	0.9922	84.67
48.5	1,256,308	49,087	0.0391	0.9609	84.01
49.5	829,166	2,802	0.0034	0.9966	80.73
50.5	775,410	45,210	0.0583	0.9417	80.46
51.5	681,464	21,584	0.0317	0.9683	75.77
52.5	657,879	8,571	0.0130	0.9870	73.37
53.5	630,765	15,254	0.0242	0.9758	72.42
54.5					70.67

SOUTH CAROLINA ELECTRIC & GAS COMPANY

ACCOUNT 476.00 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AT DECEMBER 31, 2003

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUT. BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R4						
NET SALVAGE PERCENT.. -25						
1949	615,511.46	618,743	769,389			
1950	18,542.85	18,399	23,179			
1951	2,000.46	1,958	2,501			
1952	48,736.66	47,043	60,921			
1953	50,954.64	48,471	63,693			
1954	378,054.33	354,284	472,568			
1955	602,594.18	555,893	744,909	8,334	15.72	530
1956	528,272.84	479,606	642,683	17,658	16.42	1,075
1957	1,152,295.36	1,028,856	1,378,690	61,679	17.14	3,599
1958	722,909.94	634,534	850,290	53,347	17.87	2,985
1959	1,126,583.63	971,397	1,301,694	106,536	18.61	5,725
1960	1,817,059.17	1,538,141	2,061,144	210,180	19.37	10,851
1961	1,725,132.23	1,432,938	1,920,169	236,246	20.13	11,736
1962	1,590,458.72	1,295,230	1,735,638	252,435	20.91	12,072
1963	1,757,292.43	1,401,880	1,878,551	318,065	21.71	14,651
1964	2,612,612.09	2,040,450	2,734,249	531,516	22.51	23,612
1965	1,887,411.47	1,441,982	1,932,289	426,975	23.33	18,302
1966	2,172,223.96	1,621,837	2,173,298	541,982	24.16	22,433
1967	1,962,478.54	1,430,892	1,917,428	535,670	25.00	21,427
1968	2,848,209.26	2,026,501	2,715,557	844,705	25.85	32,677
1969	3,663,843.58	2,540,876	3,404,831	1,174,973	26.71	43,990
1970	3,637,349.83	2,456,120	3,291,257	1,255,430	27.59	45,503
1971	5,364,078.62	3,523,529	4,721,609	1,983,489	28.47	69,669
1972	2,294,849.52	1,464,975	1,963,100	905,462	29.36	30,840
1973	1,713,764.97	1,061,463	1,422,384	719,822	30.27	23,780
1974	889,342.00	533,939	715,490	396,188	31.18	12,706
1975	280,515.38	163,050	218,491	132,153	32.10	4,117
1976	286,277.03	160,852	215,545	142,301	33.03	4,308
1977	403,777.47	219,049	293,531	211,191	33.96	6,219
1978	650,826.65	340,301	456,011	357,522	34.90	10,244
1979	1,082,597.45	544,682	729,886	623,361	35.85	17,388
1980	2,545,237.95	1,230,304	1,648,635	1,532,912	36.80	41,655
1981	3,789,909.26	1,756,149	2,353,280	2,384,107	37.76	63,138
1982	3,238,121.64	1,435,702	1,923,873	2,123,779	38.72	54,850
1983	3,452,489.77	1,460,835	1,957,552	2,358,060	39.69	59,412
1984	5,345,738.72	2,153,664	2,885,959	3,796,214	40.66	93,365
1985	5,724,030.51	2,189,442	2,933,902	4,221,136	41.64	101,372
1986	11,211,714.24	4,060,042	5,440,548	8,574,095	42.62	201,175

SOUTH CAROLINA ELECTRIC & GAS COMPANY

ACCOUNT 476.00 MAINS

CALCULATED REMAINING LIFE DEPRECIATION ACCRUAL
RELATED TO ORIGINAL COST AT DECEMBER 31, 2003

YEAR (1)	ORIGINAL COST (2)	CALCULATED ACCRUED (3)	ALLOC. BOOK RESERVE (4)	FUT. BOOK ACCRUALS (5)	REM. LIFE (6)	ANNUAL ACCRUAL (7)
SURVIVOR CURVE.. IOWA 60-R4						
NET SALVAGE PERCENT.. -25						
1987	7,840,510.56	2,678,514	3,589,270	6,211,368	43.60	142,463
1988	7,421,677.56	2,384,214	3,194,901	6,082,196	44.58	136,433
1989	6,925,068.73	2,081,849	2,789,725	5,866,611	45.57	128,738
1990	5,732,327.75	1,605,052	2,150,806	5,014,604	46.56	107,702
1991	6,617,102.23	1,716,311	2,299,896	5,971,482	47.55	125,583
1992	6,102,118.66	1,456,881	1,952,253	5,675,395	48.54	116,922
1993	4,690,692.62	1,023,157	1,371,054	4,492,312	49.53	90,699
1994	4,021,832.63	794,312	1,064,396	3,962,895	50.52	78,442
1995	6,126,736.12	1,082,135	1,450,085	6,208,335	51.52	120,503
1996	8,908,666.17	1,389,752	1,862,299	9,273,534	52.51	176,605
1997	7,175,325.67	970,463	1,300,442	7,668,715	53.51	143,314
1998	4,978,383.10	569,403	763,013	5,459,966	54.51	100,164
1999	12,082,684.99	1,129,731	1,513,865	13,589,491	55.51	244,812
2000	11,310,670.07	824,265	1,104,534	13,033,804	56.50	230,687
2001	7,449,765.31	388,319	520,357	8,791,850	57.50	152,902
2002	5,078,883.38	158,715	212,682	6,135,922	58.50	104,888
2003	5,265,802.20	54,633	73,209	6,509,044	59.50	109,396
	196,922,046.56	66,591,715	89,167,511	156,985,047		3,375,659
COMPOSITE REMAINING LIFE AND ANNUAL ACCRUAL RATE, PCT..					46.5	1.71